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THE PLANNING AND ORGANIZATION OF ECT TREATMENTS IN FINLAND – RESULTS FROM A NATIONAL SURVEY

ABSTRACT

Objectives: *The demand for acute ECT, as well as the number of maintenance ECT patients has increased in Finland. Due to the increased demand, waiting times have grown and scheduling of ECT treatments has become more complicated. The purpose of this study was to analyse the situation of ECT treatment in Finland in different neuromodulation units regarding waiting times, organizing the treatment and categorizing the urgency of the treatment. The survey was part of the first author's development assignment for a leadership training course for psychiatrists organized by the University of Lapland and the Finnish psychiatric association. The goal of this survey was both to gather information about the current situation in different neuromodulation units and to use the information in developing the practices in the Neuromodulation unit in Oulu University Hospital.* ***Materials and methods:*** *A structured questionnaire in the form of a Webropol survey was used for collecting the data from different Neuromodulation units in Finland. The questionnaire included 35 questions. It was sent to the person leading the clinical work in the unit. We received a total of 22 answers, representing to our knowledge all the units currently giving ECT in Finland, except for the Åland Islands and Vanha Vaasa Hospital, which is a state forensic psychiatry unit.* ***Results:*** *There are large differences in both the evaluation of the need for ECT and how the treatments are organized. ECT waiting list was in use in 15/22 (68%) of the units, and patients were classified based on the urgency of the treatment in 9/21 (43%) of the units. The waiting list caused additional work. The three most important criteria used in evaluating the urgency were suicidality, psychotic symptoms in depression and catatonia as well as inpatient status. In most units, urgency was evaluated by the psychiatrist in the ECT unit. The waiting time for different patient groups varied from a few days to over a year. In 91% of the units, catatonia patients were able to start ECT within a week, whereas for non-acute outpatients with treatment-resistant depression, the waiting time in 57% of the units was 1-3 months, and in one unit over one year. The length of the acute ECT varied from 3 to 16 treatments, with a somewhat different number of treatments for schizophrenia and depression. ECT maintenance treatments were given in all 22 units, with varying protocols. In some units (41%) the length or the availability of the maintenance treatment was limited due to the resources.* ***Conclusions:*** *Although the criteria for urgency are largely consistent, there are more patients fulfilling ECT indications than there are resources to treat. In addition, treatments are organized in different ways and the capacity of the ECT units varies leading to different waiting times. In all units, the most acute patients get treatment fast but the variation in non-acute patients is great. As there are no national guidelines regarding practical organization of ECT treatment, collaborative efforts to identify and adopt good practices are needed. A larger survey about the treatment numbers and the technical treatment methods for different neuromodulation treatments is currently underway.*

KEYWORDS: ECT, ELECTROCONVULSIVE THERAPY, ACUTE ECT, MAINTENANCE ECT, NEUROMODULATION

BACKGROUND

Electroconvulsive therapy, ECT, has been in use since 1938 globally, and in Finland since 1941 (1). With the advent of modern psychiatric medication, its use declined from the 1960s onwards. However, with the limited efficacy of medications and improvement in ECT technique, the use of ECT started to increase gradually. The most common indication of ECT in Western countries is major depression (MDD), especially with psychotic features, but ECT is also used in schizophrenia and bipolar disorder. For severe and psychotic depression ECT is still the most efficient treatment (2). ECT is also used in treatment-resistant depression (TRD), most commonly defined as not having benefited from two adequate antidepressant (AD) trials, also when depression is moderate (2,3). Other commonly used forms of non-invasive brain stimulation (NIBS) are rTMS (repetitive transcranial magnetic stimulation), tDCS (transcranial direct current stimulation) (Lefacheur et al. 2017) and IV ketamine (4,5,6).

The prevalence of depression in Finland is 5-7% (7). According to a recent Finnish study of a cohort of patients (n=177 144) receiving the first AD treatment between 2004-2016, only 1471 patients, i.e. 0.8% of the sample, received any neuromodulation treatment. Of these, 1393 patients received ECT, 75 rTMS, 5 tDCS and 26 ketamine treatment. Only 3.3% of the patients with TRD and 0.5% of the patients with MDD received NIBS. Moreover, the median time interval from the initiation of AD to the start of NIBS was 3.4 years (8).

ECT treatments have been given in psychiatric hospitals and also in somatic hospitals, often at recovery rooms. ECT units have over the last decade evolved into specialized neuromodulation units that commonly offer rTMS, IV ketamine and tDCS in addition to ECT.

The current number of ECT treatments given in Finland is not known. In 2013 there were 974 patients treated with ECT in Finland, according to a survey with an 86% response rate (9). It could be extrapolated that somewhat more than 1200 patients received ECT treatment (9). Depression was the main indication for having ECT (69% of the patients; 38% MDD, 14% bipolar depression, 31% psychotic depression). A minority of the ECT patients had schizophrenia (9%), schizoaffective disorder (4%) and 2.5% had other diagnoses. On average, ECT was given to 23/100 000 habitants, with the level varying from as low as 7.5/100 000 in Kymenlaakso to 52.9/100 000 in South Savo (9).

The psychiatric services in Finland have suffered from underfunding, which is disproportionate to the increased demand. The underfunding has for example led to the closing of hospital beds in all hospital districts (10). In addition, the waiting times in outpatient clinics are often long. In contrast, psychiatric disorders cause the majority of disability pensions. MDD is the most common single diagnosis and led to 3862 disability pensions in the year 2019, with the average age of the pensioners only 47 years (11).

Based on clinical experience, referrals to neuromodulation treatments in general have increased, but there is no research data on the subject.

AIMS

The purpose of this study was to evaluate the situation of ECT treatments in Finland regarding the ways to organize acute ECT, waiting times and categorization of the urgency of ECT, as well as the stress experienced by the professionals regarding the organization of ECT treatments.

The role of ECT among other treatment modalities of depression was also studied. The survey was part of the first author's development assignment for the leadership training course for psychiatrists organized by the university of Lapland and the Finnish psychiatric association. The goal was to gather information from Finland and moreover, develop organization of ECT treatments in the neuromodulation unit in Oulu University Hospital in the Wellbeing Services county of Northern Ostrobothnia.

METHODS

A structured questionnaire in the form of a Webropol survey was created and used for collecting the data.

The ECT organization questionnaire was created mainly by the first author, with the help of the other authors (LV, AH, KJ, NS, PS) and Marjut Grainger from the Finnish Institute for Health and Welfare. It included 35 questions, in the form of open questions and in slider scales and multiple-choice answers, about the everyday practice of ECT treatments. The questions concerned the organization of ECT treatments, for example, if the patients were examined by a psychiatrist, or the treatment was organized directly on the basis of the referral, who organized the treatments, whether a waiting list was in use, what were the waiting times in different patient groups, what was the criteria used for prioritizing

the patients, and how stressful the organizational process was for the professional.

The questionnaire was sent first via a Finnish ECT email posting list, which included the email addresses of most of the neuromodulation units and other units offering ECT, in November 2023, and in a Facebook group for Finnish psychiatrists. To increase the number of answers, the questionnaire was re-emailed several times to the posting list during November 2023–January 2024. In addition, the questionnaire was emailed to the chief physicians in wellbeing counties, if answers were missing in certain counties/areas. In addition, the questionnaire was translated into Swedish and sent to the neuromodulation unit of the Åland islands.

The numerical data was analysed with the tools in Webropol and Excel, to count means, medians and standard deviations. Open answers were grouped into categories when appropriate.

RESULTS

A total of 22 answers were received, representing to our knowledge all the units currently giving ECT in Finland, with the exception of the Åland islands and Vanha Vaasa hospital, a state forensic hospital. All wellbeing services counties answered except Kainuu and the city of Helsinki, which don't have their own ECT units. In Northern Savonia, there are two hospitals offering ECT and both gave separate answers. In HUS, a combined answer was received from Psychiatry Centre, Jorvi Hospital and Peijas Hospital, and separate answers from Hyvinkää, Porvoo and Lohja Hospitals. In addition, an answer was received from Niuvanniemi hospital, which is a state forensic hospital. In all, answers were received from 24/26 ECT units (92%). The number of answers doesn't directly correspond with the number of wellbeing services counties. Some responders didn't answer all the questions and thus the number of answers may be less than 22. Due to this discrepancy the total number of answers is shown, when counting percentages. All ECT was given modified, i.e. in anaesthesia in the presence of an anaesthesiologist.

EVALUATION OF THE NEED FOR ECT

The practice regarding the evaluation of ECT suitability and patient information for outpatients is shown in *Table 1*. The main finding was that units differed in whether a doctor's or a nurse's consultation was in use to evaluate the need and suitability of ECT or to give information to the patients about the treatment.

WAITING TIME TO THE ECT EVALUATION APPOINTMENT FOR NON-URGENT PATIENTS

If a doctor's appointment was used to evaluate whether ECT should be given, the waiting time was asked (*Table 2*). In almost all units, the evaluations were made in less than 3 months, with only one unit with a 3-6-month waiting time and one unit (Oulu University Hospital) with currently a >1-year waiting time.

Table 1. Evaluation of the need for ECT for outpatients

Way used to evaluate the need	No. of units (%)	Other things mentioned
Based on the referral, no separate evaluation at the ECT unit	15/21 (71%)	- The referral should be clear and complete - The referral should include all the necessary information - Somatic evaluation and lab tests had to be done - Referrals from a psychiatrist
Doctor's ECT evaluation appointment about need of ECT	13/21 (62%)	- Only for patients previously treated with ECT - Referrals from a GP or occupational healthcare - If the referral unclear or old - Difficulty in evaluating the patient - Urgent patients - Old patients - Often appointment together with a nurse
Nurse's appointment	8/21 (38%)	- Mainly for giving information to the patients - New outpatients, both for giving information to the patients and for evaluating the patients - Often appointment together with a doctor - Very rarely used nowadays
Phone call	3/21 (14%)	- Inpatients -Patients previously treated with ECT
Only inpatients	1/21 (5%)	

Table 2. Waiting time for the consultation for non-urgent outpatients

Waiting time	No. of units / No. of answers (%)
<1mo	8/17 (47%)
1- <3mo	7/17 (41%)
3- <6mo	1/17 (6%)
6- <12mo	0/17 (0%)
≥12mo	1/17 (6%)

THE RESERVATION OF ACUTE ECT

The organizational process of ECT includes both the planning and reservation of acute ECT. As acute ECT consists of a series of treatments, the length and the urgency of the acute ECT series needs to be taken into account. Organizing ECT treatments is most commonly done by registered nurses (68%) and in half by doctors (*Table 3)*. In 32% of units, it is done by a secretary, and in one unit by an ECT nurse (a nurse specialized in providing ECT). Some units chose more than one option, so the organizing process of ECT is multidisciplinary. The answers demonstrate the importance of nurses in the organizational process in many ECT units.

ORGANIZATION OF ACUTE ECT AND ITS CHALLENGES

Organization according to the urgency

In 9/21 (41%) of the ECT units the patients were classified into different urgency categories. The decision about the urgency was usually made by the doctors in the ECT unit. *Table 4* shows the categories used in different units as descriptions of the symptom level or the time frame targets. The time frame in the most urgent Category 1 varied from 0 to 14 days, the second category from 1 to 4 weeks, and the third category from 3 weeks to over a year, showing the large variation in the time frames.

Waiting list and extra work and failure demand

The majority of the units, 15/22 (68%), used a waiting list. 9/15 of the waiting list users answered a question about extra work and failure demand caused by the waiting list. In 8/9 of the answering units, the waiting list was thought to cause extra work, and in 3/9 it was thought to cause failure demand. Some examples of extra work and failure demand were that the waiting list was time-consuming, patients and other professionals were asking about the waiting-times, the status of the patient needed to be re-evaluated during the waiting time and thus the urgency of the treatment would need to be changed, contacting the patients could be difficult, and managing of the waiting list caused extra work for the treating doctors.

If a waiting list was in use, an open question was asked on how it was organised. In most units, the ward or the outpatient care unit were responsible for the somatic evaluation such as the laboratory tests, and a dedicated ECT nurse / wait-list nurse checked the preliminary tests and whether the urgency needed to be changed.

If no waiting-list was in use, there was an open question about how the treatments are organized. Seven answers were quite similar; in general, there was no need for a waiting list as the treatments could be organized according to the need of the patient, there was flexibility in the treatment slots so that urgent treatments could always be given, or that some slots were kept vacant for possible urgent patients. In all, the number of treatment slots was thought to be sufficient for the demand in the catchment area. In some units, there were more ECT treatments available than there was a demand.

Table 3. Who organizes the ECT treatments

Treatments organized by	No. of units / No. of answers (%)
nurse	15/22 (68%)
doctor	11/22 (50%)
secretary	7/22 (32%)
ECT nurse	1/22 (5%)

Table 4. Categories used to organize patients by urgency

Unit	Category 1	Category 2	Category 3
1	inpatients immediately	outpatients, waiting time 1-3 weeks	
2	vital indication	long-lasting symptoms	previous ECT, then relapse
3*	acute patients, inpatients	non-acute, semi-urgent patients	non-urgent patients, waiting time over a year
4	urgent patients, waiting time 1-2 weeks	the rest	
5	vital indication asap	inpatients and urgent outpatients, waiting time 1-2 weeks	the rest, waiting time over 3 weeks
6	urgent, waiting time 0-7 days	fast, waiting time 8-30 days	non-urgent, waiting time >30 days
7	acute, urgent patients, waiting time 1-7 days	non-urgent patients, waiting time max 3 months	
8	inpatients	outpatients	
9**	inpatients: 1. catatonic patients 2. psychotic and suicidal patients	outpatients: 1. severe/acute depression 2. TRD	

Other things mentioned in the answers:
*Category depends on the symptom level but no specific criteria are mentioned. No specific target times can be used due to long waiting times.
**<23 years old waiting time <3 months, others waiting time <6 months

4.3 The waiting time for different patient groups

All 22 units answered the question about how long different patient groups usually must wait for ECT.

Table 5. Waiting time to ECT for different patient groups

Patient group	<1w	<1mo	<3mo	<6mo	<9mo	<1y	>1y
catatonia, life-threatening situation	91%	9%	0%	0%	0%	0%	0%
psychotic depression	45%	46%	9%	0%	0%	0%	0%
inpatient with severe depression or treatment-resistant psychosis with no danger of death	18%	68%	14%	0%	0%	0%	0%
acutely suicidal outpatient	24%	67%	5%	0%	5%	0%	0%
non-urgent outpatient, for example, TRD without suicidality	0%	24%	57%	10%	5%	0%	5%

The results show that a catatonic patient gets treatment in less than a week or a month in all the units (*Table 5*). However, for a patient with psychotic depression the variation is larger, 45% in less than a week, 9% in three months and the rest in between. An inpatient with a less acute situation gets ECT in less than a week in 18% of the units, in less than a month in 68% of the units, and in less than three months in 14% of the units. This can be a long time period for waiting in inpatient care if the need for ECT has been established. The non-urgent outpatients, regardless of whether they are on sick or rehabilitation leave, mostly get ECT in less than three months (57%), some in less than one month (24%), but 10% in less than 6 months, 5% in less than 9 months and 5% must wait for over a year, so the variation between units is large for this non-urgent patient group.

It is notable that in some units all patients get ECT in less than a month, even non-urgent outpatients, whereas in some units even inpatients have to wait up to three months and non-urgent outpatients over a year.

The ways to decide the urgency of treatment

If not all patients can be treated straight away, the patients' urgency must be evaluated in some way. We asked about what factors were considered when evaluating the urgency. All the factors influencing the categorization of the urgency were asked to be listed. The results shown in *Table 6*.

Table 6. Factors affecting the urgency of ECT

Factors affecting the urgency of ECT	No. of units / No. of answers (%)
Suicidality	21/22 (96%)
The presence of psychotic symptoms	20/22 (91%)
The severity of depression	19/22 (86%)
Inpatient status	17/22 (77%)
The symptoms of depression	15/22 (68%)
The need for extra supervision/isolation	13/22 (59%)
Need for somatic examinations	7/22 (32%)
Ability to work	7/22 (32%)
Other (catatonia, absence of drug and alcohol use, the expected benefit)	5/22 (23%)
Having underaged childred	4/22 (18%)
Age (<18 years old may be more urgent)	4/22 (18%)

Three most important factors (in their own words) were asked regarding the urgency of ECT (*Table 7*). The top four factors were suicidality (15 units), psychotic symptoms (13 units) catatonia/stupor (9 units) and inpatient status (8 units).

Table 7. The three most important factors for urgent treatment

Factor	No. of units / No. of answers (%)
suicidality	15/22 (68%)
psychotic symptoms in depression	13/22 (59%)
catatonia/stupor	9/22 (41%)
inpatient status	8/22 (36%)
symptom severity	3/22 (14%)
ability to work/function	2/22 (9%)
somatic status	2/22 (9%)
indication	1/22 (5%)
expected benefit	1/22 (5%)
adequate medication trials	1/22 (5%)
age	1/22 (5%)
worsening of symptoms	1/22 (5%)
availability of hospital beds	1/22 (5%)
need for isolation	1/22 (5%)
emergency	1/22 (5%)
level of treatment resistance	1/22 (5%)

The length of the acute ECT and variation depending on the indication

As shown in *Table 8*, the number of ECT treatments varied greatly between the units, and in some units there was also variation according to the individual need of the patient. For depression, the number of treatments varied from 6 to 12 treatments, with an average of 9.9, and for psychosis, the number varied from 3 to 16, with an average of 11.5.

There were also differences in the time point when the response to ECT was evaluated and at which time point the acute ECT was stopped if there was no response. Some answers separated depression and psychosis, and some gave a joint answer. The shortest number of treatments before evaluation was 4, and the longest 20. Several responses included comments that the adverse effects, such as memory problems, were also taken into account when considering ending the acute ECT. When comorbid personality disorder was present, ECT was stopped earlier. For psychosis, the treatment was continued longer. In some units the anaesthetic agent or the electrode placement from unilateral to bilateral were switched during acute ECT, if the treatment response was inadequate. The evaluations of ECT response and adverse effects were made in the ECT unit or at the hospital ward by the treating physician or in the outpatient clinic.

Table 8. The length of the acute ECT presented as the number of treatments booked (21 answers) or as when the response was evaluated (22 answers)

	Minimum number of treatments	Maximum number of treatments	Average of the minimum numbers	Average of the maximum numbers	Average all	When response evaluated, min-max
Depression	6	12	8.7	11.14	9.92	8-15
Psychosis	3	16	9.95	13	11.475	10-20
Not specified by diagnosis						4-15

MAINTENANCE ECT

Scheduling of maintenance ECT

All the ECT units gave maintenance ECT (mECT). The most common protocol of the mECT (in 10 units) was to start with 1-week intervals (1-8x), then biweekly (1-4x or not specified), then every three weeks (1-4x) or every 2-5 weeks, and then every 4 weeks or not specified. In one unit, mECT was started once or twice weekly and then the interval was extended. In 4 units, mECT was started biweekly and after that the interval was extended. There was large variation in the time point when the interval was extended. In 4 units, there was no fixed schedule, mECT was planned individually. Many units evaluated mECT at a 6-month time point or a targeted limit to the duration of mECT, whereas some units did not limit the length of mECT. One ECT unit tried to prevent new mECTs, and in one unit the spacing of the mECT depended on the availability.

Sufficiency of maintenance ECT

As shown in *Table 9*, 15/22 units considered that there were sufficient mECT appointments according to patients' needs and 9/22 units considered that the length or the interval needed to be controlled due to resources. In open word answers, the ECT units described their situation in more detail.

Table 9. Sufficiency of maintenance ECT times

	yes / no of answers (%)	If no, open answers	If yes, open answers
Sufficient mECT times to take into account patients' clinical status	15/22 (68%)	-Without extra ECT on Saturdays it wouldn't be possible -Limited resources -Too few mECT appointments available -Closures and increasing demand make it difficult -Lack of anaesthesia and ECT staff -No possibility to increase treatments according to patients needs	-More appointments available than patients -mECT takes time away from acute ECT from time to time -Careful planning necessary to make this work
The need to control the length or the interval of mECT due to resources	9/22 (41%)	-Rarely -More times available than patients -Sometimes appointments need to be changed	- Increasing need to extend the treatment interval -mECT is cancelled rather than acute ECT if employee is sick or the unit busy otherwise -Max 6-month length for mECT -Sometimes the interval extended or mECT stopped

ECT DEMAND VS RESOURCES

Table 10 shows the factors affecting the need for ECT, the capacity of the ECT unit and the balance of demand and capacity.

Table 10. ECT demand vs. resources

	Yes / no of answers (%)
Factors affecting the need for ECT	
Has the indication for ECT changed during the past 5 years	9/22 (41%)
ECT used to fill in for the lack of other treatment forms	6/20 (30%)
Factors affecting the capacity of the ECT unit	
Closure days in the unit*	6/22 (27%)
Does the guarantee of the treatment time concern ECT	10/22 (46%)
The strike in 2022 affected ECT services	5/22 (23%)
Balance of demand and resources	
Demand for ECT has increased more than resources	10/22 (46%)
Difficulties in prioritizing the patients	11/22 (50%)

*Number of closure days 2-40, average 18.3, mean 16.5

Factors affecting the need for ECT

ECT indication. In 9/22 (41%) of the units it was thought that ECT indication has changed during the past five years. In a further open question this was elaborated: that more outpatients and patients with moderate-level TRD are given ECT, as well as patients with comorbid personality disorder, younger patients, patients that are at risk of disability pension and patients with treatment-resistant psychosis. The problem with more demand than resources has led to situations where inpatients block the outpatients, and the ones with less severe symptoms wait months, and their symptoms can change during the waiting time. One comment was that there wasn't as much need to prioritize before.

ECT used to fill in for other treatment forms. There were three questions about the outpatient care, one about whether the respondents felt that ECT was used to fill in for the lack of other treatment forms (yes/no), and then asked to tell more about this, if yes was selected, and another open question about how the outpatient care functioned during the waiting time for ECT treatment.

In 6/20 (30%) of the units it was thought that ECT was used to compensate for the insufficiency of other treatments modalities. In open replies it was said that patients didn't receive other treatments while they were waiting for ECT, and that outpatient care was too sparse or lacking so that patients got attached to the neuromodulation unit. Examples of specific treatment modalities lacking were medication changes and/or medication combinations, pharmacogenetic testing and psychotherapy and other therapeutic treatments. In addition, other neuromodulation treatments such as rTMS, tDCS or IV ketamine weren't available or the distance to other treatment modalities was too long in some units. In addition, assisted living wasn't thought to be supportive enough.

There were varying responses to the question about the functioning of outpatient care during the waiting time for ECT. In six units, outpatient care was thought to function normally. In another 5 units, outpatient care was sometimes stopped at the ECT referral. Outpatient care also varied so that some patients had no outpatient care and for others, it functioned well. It was also said that outpatient care needed guidance from the ECT doctor to function properly, and that there seemed to be insufficient resources in outpatient care. In one unit, it was said that outpatient care units sometimes thought that the ECT unit would take responsibility for the entire care of the patient.

Factors affecting the capacity of the ECT unit

Closure days. Six units had closure days during the year, length ranging from 2 days to 40 days, i.e. 8 weeks. Shutdowns make it more difficult to organize acute ECT, as long pauses may delay the effect and thus increase the number of treatments needed.

Legal issues: Treatment time guarantee. The view on treatment time guarantee divided the units, 45% thought that it also concerns ECT. There is no clear consensus if ECT should follow the time frame of the treatment time guarantee or what the consequences are if ECT isn't given in that time frame, as is the case in several ECT units. Thus, there is no legal limit on how long the patients must wait for ECT.

Strike in 2022. There was a healthcare workers strike in 2022 which concerned mainly nurses and secretaries, depending on the union. The strike affected 5/22 units so that ECT treatments had to be either cancelled or a smaller number of treatments given. It is to be noted that the strike in general was limited and did not concern all hospitals, so it only affected a small part of the ECT units. In the ECT units affected by the strike, ECT treatments had to be cancelled, waiting lists were formed, and the effects of the strike lasted until 2023.

The balance of demand and resources. According to the answers, the difficulties in prioritizing the ECT patients were due to: inpatients blocking outpatient ECT, too many MDD patients with severe symptoms in need for ECT, earlier there wasn't the need to prioritize and prioritizing and evaluating the urgency is difficult, the organization of the treatments is time-consuming , sometimes ECT is used instead of other, maybe more suitable treatment forms, e.g. rTMS isn't available, limited anaesthesia resource challenges, increasing ECT days.

Strain for the professional

In a slider scale question (1-10), we asked how much the organization or planning of ECT put a strain on the work. The mean was 4.7 (SD 2.7) and the median 4.0. In all, it seems that the situation regarding the waiting times and the strain on the professionals varied.

GENERAL POINTS EXPRESSED BY THE RESPONDERS

At the end of the survey there was an open question to comment on anything. The following comments were given. Having a dedicated team handling neuromodulation treatments has improved the smoothness of the treatments. A good referral and a dedicated doctor are important. The entire psychiatric service is important so that the patients get timely treatment and the ECT unit doesn't get crowded with patients in a bad condition. A critical evaluation of the need for the treatment by a doctor is important to save resources. Good guidelines and clear multidisciplinary coordination help to organize the treatments and use of resources. In some ECT units it was pointed out that the doctors at outpatient clinics had little knowledge about ECT and thus didn't refer patients to the unit.

DISCUSSION

MAIN RESULTS

The results from the present questionnaire show that ECT units can be roughly divided into two groups, one with fast access to ECT for all patient groups, and the other with waiting lists and the need to prioritize. Some units have a

clear way to categorize the patients according to urgency. The criteria for urgency are quite similar, the main criteria are psychotic symptoms, suicidality, catatonia and inpatient care. Only one unit brought up inability to work as a criterion for urgency. In addition, the length of acute ECT varies greatly, as well as the structure of mECT regarding the spacing of the treatments and the duration of the mECT. In some ECT units, limited resources restricted the duration of mECT or caused the need to extend the treatment interval regardless of patient needs. ECT indications have also changed so that patients with moderate-level depression are also treated with ECT, following the national guidelines. There is variation between the ECT units on how stressful the employees experience the organization of ECT and how much the waiting lists cause extra work.

CLINICAL AND SOCIETAL ASPECTS

This questionnaire provides new information about the situation of ECT treatments in Finland. The answers raise important questions, such as, what is the position of ECT and other neuromodulation treatments in Finland, when so many patients meet the indication criteria for the treatments? How to target the treatments, to the patients most likely to benefit, or the patients who consume the most resources? Does the situation of the ECT units mirror the situation of psychiatric care in general? Are there still many patients not referred to ECT due to lack of knowledge among doctors? How to keep the ECT units functioning under the pressure of increasing referrals while simultaneously the funding is limited due the need for savings in the wellbeing services counties?

According to the answers, the ECT units have quite similar criteria in evaluating the urgency of patients, suicidality being the most important symptom. Do the criteria for urgency correspond to the criteria used in somatic illnesses? Preserving life is the main goal in all medicine. What about the inability to work or the psychosocial distress of severe psychiatric illness? These factors were rarely considered when evaluating the urgency. One possible reason for the strain experienced by the professionals may arise from the difficulty to create clear categories for urgency, as patients and their life circumstances differ individually. Suicidality is a common symptom in severe depression, 47% of MDD patients are suicidal (12). The evaluation of suicidality may be difficult, with potentially lethal consequences.

There are no studies nationally or internationally on the number or the change in the number of ECT referrals. The clinical data from the Oulu University Hospital neuromodulation unit in Northern Ostrobothnia Wellbeing Services County show that both the number of ECT referrals and the number of ECT treatments given has increased greatly. In 2013 there were approximately 25 referrals to outpatient ECT compared to 246 referrals to both ECT and IV ketamine in 2023. The number of ECT treatments has tripled, approximately 1000 ECT treatments were given in 2013, compared to about 3000 in 2023.

What causes the increased need for ECT treatment? The specialized neuromodulation units may affect this in some way, in providing training and consultation as well as in increasing the availability of the treatments. In addition, the teaching practice of residents and medical students may affect the knowledge and opinion of ECT. In the university hospital of Oulu, medical students have been offered a voluntary 1-hour visit to the neuromodulation unit during their psychiatry course for many years. Due to the popularity of these visits, more visiting days have been added. It has been shown in several studies that both observing and directly participating in ECT treatments have positive effects on the students' opinion of ECT (13,14). It has been shown that patient referral for ECT is associated with the treating physicians' and patients' knowledge and attitudes towards ECT, but also the presence of specific logistical barriers may affect negatively (15). Psychiatric residents are taught ECT during their residency and they also learn to evaluate the suitability and effectiveness of ECT in different patient groups. The active education of students and residents on ECT increases the knowledge and may thus increase the number of ECT referrals.

It may be possible that there is less stigma attached to ECT in Finland compared to other countries, although this hasn't been studied. There is no anti-ECT movement in Finland. If you use keyword sähköhoito (ECT in Finnish) in youtube, the first video is the educational video by Päijät-Häme Hospital District ECT unit, with 153 000 viewings (16). Furthermore, in a google search with the keyword "sähköhoito", the first result is from Mielenterveystalo, part of the national health village platform, with scientifically-based information on ECT. ECT is also included in the Finnish Current Care Guidelines for depression and schizophrenia, which may increase both public knowledge and knowledge of the professionals (17,18). It may be that in Finland patients get more accurate information from the internet. Different ECT units may also have their own ECT videos, and they may use different modern digital treatment pathways, such as the national health village platform, to provide information.

In addition, there are increasing numbers of articles about ECT in the Finnish public media, with usually a positive patient's story and information from a clinician, which may lead to public awareness and a more positive view of the treatment, although this hasn't been studied.

The presentation of ECT in TV, movies and youtube has been studied, and generally the portrayal of ECT isn't accurate or truthful and this may increase the stigma associated with ECT. The movie "One Flew over the Cuckoo's Nest" still has a strong influence on people's knowledge and opinion about ECT (19). It has also been proposed that medical professionals should counteract this by producing qualified ECT videos (20). The depiction of ECT in British media has been shown to be either neutral or negative, even calling ECT "cruelty" or "a tool for repression" (21).

The length of the acute ECT and the time point for evaluation of the response differs greatly in ECT units. The determination of the need for an extended treatment course and the length of mECT as a whole is an important aspect. In the world of limited healthcare resources and the fact that ECT is currently offered only in public clinics, economic aspects must be taken into account in planning the treatments. However, it is not known clearly what number of treatments is sufficient to show whether the patient responds or not, as this takes more time in some patients. In practice, we may have to accept that some patients might receive an inadequate number of treatments.

Maintenance ECT is currently given mainly to those patients who have quickly relapsed after successful acute ECT or to a selected patient population even after the first successful acute ECT (22). As approximately half of the patients relapse within the first six months after a successful acute ECT, the need for mECT is great (23). Stopping of mECT usually causes an increase in symptoms, thus the number of maintenance patients increases. 32% of ECT units answered that they didn't have sufficient resources for mECT according to the clinical need, and 41% had to control the length of mECT due to resources, so this problem is common. This raises a question of what symptom level is acceptable? Do we want to prevent rehospitalization, or can the quality of life be considered? If an effective treatment form has been found, is it ethical to stop it due to lack of resources?

As we don't know the current number of treatments given in each unit, it's not possible to analyse whether the number of ECT treatments given annually/population of the catchment area is related to the availability of the treatments or the strain on the professionals. It is also possible that the real need for ECT varies in different parts of Finland. ECT may also be underutilized, and in units where its use is increasing and more patients are benefiting, the knowledge of ECT and its efficacy is spreading, and more suitable patients are referred to the treatment.

In Finland, much attention has lately been given to psychiatric care in general, with an emphasis on increasing the availability of psychosocial care at the primary healthcare level and digitized treatments (first-line therapies) (24). However, no national emphasis has been given to tertiary-level treatments used for treatment-resistant or most severe patients, highlighting the importance of this work.

STRENGTHS AND LIMITATIONS

A primary strength of this study is that it is a nationwide survey of the practical aspects of the organization of ECT, demonstrating the situation in Finland. These practical aspects of how clinicians and ECT nurses work on a daily basis have not previously been studied. In addition, the study demonstrates the current situation of ECT treatments in Finland. The study is comprehensive, with a large scale of questions answered by almost all units offering ECT in Finland.

However, there are some limitations. We didn't receive replies from all the ECT units in Finland. In addition, the answers are based on estimations, not actual data, e.g. about waiting time. The respondents varied, in some units they were the doctors responsible for the ECT treatment, and in some, ECT nurses or head nurses. As the practical organization of ECT varies regarding the occupational group in charge of it, there may be differences in the answers. However, all respondents were from the ECT units, so the answers can be assumed to be clinically relevant.

CONCLUSIONS

The main finding was that the situation in the ECT units differs with respect to waiting times, length of treatment, the organization of ECT and also the strain that the organizational process causes the clinician. In some ECT units in Finland even inpatients must wait for ECT for up to three months, which may not be the case for somatic acute treatments. In addition to the patient suffering due to the continuation of the symptoms of the illness, inpatient care is costly and more expensive than ECT treatment. For example, in Northern Ostrobothnia Wellbeing Services County, a psychiatric inpatient hospital day costs 390-996e, and thus one-month inpatient care costs 11 700e-29 880e,

whereas an acute ECT treatment series of 12 treatment sessions costs 5760e. According to clinical experience, inpatients can usually be discharged soon after the start of acute ECT, as their health improves. Rapid access to ECT treatment could most likely decrease the costs of inpatient treatment and free inpatient beds to new patients, thus helping provide inpatient resources in the situation where they are limited and needed. In general, access to ECT differs in different parts of the country. In the future, both the figures of current ECT treatments and other neuromodulation treatments will be assessed via a separate questionnaire shedding more light on this area.

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